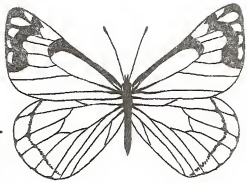
DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

DIVISION OF FORESTRY

INSECT AND DISEASE REPORT



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DETECTION SURVEY FOR THE SMALLER EUROPEAN ELM BARK BEETLE IN MONTANA USING PHEROMONE-BAITED STICKY TRAPS

by

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The smaller European elm bark beetle, Scolytus multistriatus (Marsham), the primary vector of Dutch elm disease fungus, Ceratocystis ulmi (Buism.) C. Moreau, was first collected in the United States in 1909 at Cambridge, Massachusetts (Chapman, 1910). Dutch elm disease was not confirmed in this country until 1930 (May and Gravatt, 1931). By 1970, the beetle had been reported from all of the contiguous 48 states except Arizona, Florida, and Montana (Barger and Hock, 1971), and Dutch elm disease had spread into 38 states.

Dutch elm disease was first reported in Montana in 1973 at Missoula (Claflin and Dooling, 1973) and specimens of the beetle were recovered from the infected tree. Several additional American elms have been killed by the disease in Missoula since then, and in 1977 we recovered fungus from dead and dying American elms in Ravalli County, south of Missoula.

American and other elms occur in many Montana cities and provide ample breeding material for the beetles. When Multilure, a pheromone for attracting the beetle became available to us, we surveyed selected cities, using pheromone-baited sticky traps, to determine the general distribution of the beetle in Montana.

METHODS

Hercon plastic sandwiches containing Multilure (alpha-cubene 43.8%; 4-methyl-3-heptanol 21.9%; alpha-multistriation 5.5%; inert ingredients 28.8%) were used as baits. The sticky traps were white cardboard, 17½ inches x 25½ inches, coated on one side with bird-grade tanglefoot stickum. The traps were stapled to utility poles, building sides,

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and fences, at 8 to 10 feet above the ground. The baits were stapled to the center of the traps and shielded with 3 inch x 3 inch cardboard hoods to protect them from sun and rain.

The traps were put out in early June of 1977 and picked up in late July and early August. Traps were placed near (but not within 100 feet of) elms.

Fifty traps were put out in Billings; 10 each in Great Falls, Lewistown, Livingston, and Bozeman; 5 each in Miles City and Glendive; 4 in Sidney; and 2 in Kalispell. The traps in Billings were part of a more intensive study of beetle distribution conducted by Gary Beaver of Eastern Montana College.

RESULTS

Beetles were trapped in all cities except Lewistown and Sidney. The results are summarized in Table 1. The locations of trapping sites and the distribution of the smaller European elm bark beetle in Montana are shown in Figure 1.

CONCLUSIONS AND RECOMMENDATIONS

Billings, Great Falls, and Glendive have large numbers of American elms and high populations of smaller European elm bark beetles, but Dutch elm disease has not been found in these cities. Because the fungus is killing elms in Missoula and Ravalli counties, we think it will be only a matter of time before it is found in other areas in Montana.

Cities with elms should consider all of the following (Schreiber and Peacock, 1974):

1. Reduce numbers of elm bark beetles through sanitation. In other words, destroy all elm wood that may serve as breeding sites for the beetle, including entire trees or large branches that have been weakened, injured, or killed by drought, storms, or disease. Dispose of this breeding material by burning, removing and burning all bark, chipping, or burying.

2. Begin plans for tree replacement with species not susceptible to Dutch elm disease.

3. Practice proper tree care for vigorous, healthy trees. Pruning not only removes wood that may attract beetles or act as entrance sites for diseases, it also eliminates branches that may break in wind or snow storms, resulting in large wounds. Pesticides, fertilizer and sufficient water maintain or improve tree vigor. Protect trees from mechanical injuries such as lawnmower damage.

ACKNOWLEDGMENTS

Traps, baits and placement information were provided by John W. Peacock, U.S. Forest Service, Northeast Forest Experiment Station, Delaware, Ohio. Help with traps was given by Division of Forestry personnel from Billings, Lewistown, Helena and Kalispell. Excellent cooperation was given by the park and recreation departments of the cities. Scott Tunnock, Entomologist, Forest Insect and Disease Management, U.S. Forest Service, Missoula, assisted with several phases of the survey.

TABLE 1. Catches of smaller European elm bark beetles, *Scolytus multistriatus*, attracted in summer 1977 to sticky traps baited with Multilure pheromone.

City	Number of Traps Placed	Number of Traps Catching Beetles	Average No. of Beetles Caught Per Trap
Billings	50	50	*
Great Falls	10	10	25.3
Lewistown	10	0	0
Livingston	10	7	2.1
Bozeman	10	10	8.7
Miles City	5	5	7.2
Glendive	5	4**	24.8
Sidney	4	0	0
Kalispell	2	2	3.5

*Beetles were too numerous to count.

**One of the traps was not recovered.

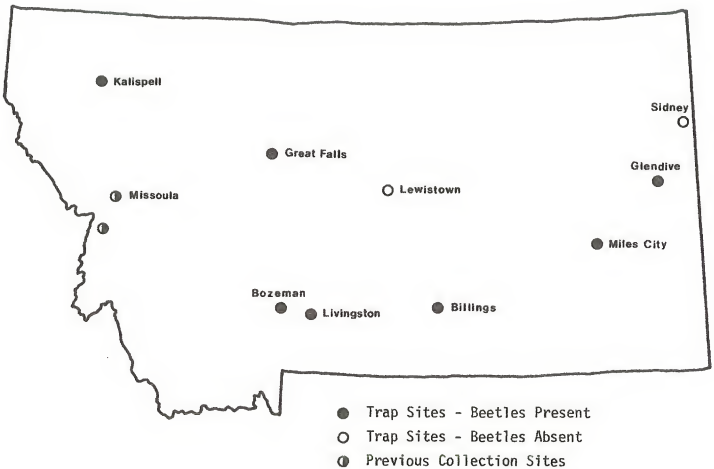

Figure 1. Location of trapping sites for the 1977 Survey, and the distribution of the smaller European elm bark beetle, Scolytus multistriatus, in Montana.

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